NEW SPECIES OF *HALENIA* FROM COLOMBIA AND VENEZUELA

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Halenia phyllophora, sp. nov.

Herba perennis caule ramoso decumbente ad 60 cm. alto; ramulis sterilibus numerosis foliosis, internodiis 1.2-2 cm. longis, ramulis fertilibus paucioribus internodiis ad 6 cm. longis; foliis in petiolum ± 1 cm. longum angustatis ad 3.5 cm. longis 8 mm. latis caulinis ± sessilibus; inflorescentia terminali et axillari subumbellata ± 8-flora ad 4 cm. longa, pedicellis gracilibus ± erectis ad 3 cm. longis; calyce ad 7 mm. longo corollae ¾ longitudinem adaequante; lobis oblanceolatis acutis margine papilloso 3-nerviis; corolla ad 12 mm. longa (calcaribus inclusis) ad 6 mm. lata pallide lutea (fide collectoris), tubo ±¼ totae corollae longitudinem adaequante; corollae lobis ovatis margine papillosis; calcaribus paullo minusquam ½ corollae longitudinem adaequantibus pendulis aliquid divaricatis; capsula subfalcate ellipsoidea ad 15 mm. longa; seminibus subglobosis.

Colombia: Comisaría del Putumayo: lado sur de la Laguna de la Cocha, Páramo de Santa Lucía (nacimiento del río Alisales), flor amarillo pálido, 2900-3100 m., Enero 9, 1940, *J. Cuatrecasas 11680* (USNH, type); alta Cuenca del río Putumayo, filo de la Cordillera entre El Encano y Sibundoy, páramo de San Antonio del Bordoncillo, corola amarillo verdosa, 3250 m., Jan. 4, 1941 *Cuatrecasas 11715* (Gray Herb.).

This leafy perennial is set apart from other species by its somewhat decumbent, much-branched stem, bearing numerous leafy sterile branchlets ½-3 dm. long. The flowering branchlets are nearly twice the height of the sterile and are simple with internodes becoming more remote towards the apex. *Halenia occulta* Allen, a close relative also abounds in sterile shoots but this species is a smaller plant with the sterile surpassing the flowering branchlets in height. The smaller flowers of the latter species bear spurs which are horizontal and very much thickened, as compared with the slender pendulous and slightly divaricate spurs of *H. phyllophora.* In *Cuatrecasas 11715* there are fewer sterile branchlets and the internodes are more distant on both sterile and flowering branchlets. The floral structure and general habit ally this specimen with the above species.

Halenia Garcia-Barrigae, sp. nov.

Herba perennis caulibus 1-3 erectis ad 52 cm. altis, internodiis remotis ad 12 cm. longis; foliis basalibus petiolum latum longe attenuatis, petiolis ad 4 cm. longis, trinerviis; foliis caulinibus 3-5-paribus ad 10 cm. remotis lanceolatis ad 3 cm. longis 3-4 mm. latis obtusis sessilibus; inflorescentia terminali et axillari subumbellata ad 8-flora ad 5 cm. longa, pedicellis erectis ± 3 cm. longis; calyce ad 6 mm. longo ½ totae corollae longitudinem adaequante; segmentibus lanceolatis attenuato-acutis 3-nerviis; corolla ad 1.5 mm. longa (calcaribus inclusis) ad 11 mm. lata, tubo brevi corollae lobis ovatis margine undulatis; calcaribus pendulis apice paullo divaricatis 1/3 corollae longitudinem adaequantibus; capsula lanceolata ad 12 mm. longa; seminibus subglobosis.

Colombia: Dept. Santander: Páramo del Almorzadero, extremo sur Peralonso. 3200 m., July 19, 1942, *J. Cuatrecasas & H. García-Barriga 9831* (Gray Herb., type; USNH, isotype); Páramo de Fontibón, 2600-2750 m., Oct. 15, 16, 1941. *J. Cuatrecasas, R. E. Schultes & E. Smith 12289* (Gray Herb., USNH); Dept. Boyacá, Páramo de Guantiva, 3200 m., Oct. 8, 1941, *same colls. 12046* (Herb. Nac. Col.).

This species resembles the last described, but may be separated by the lack of foliose sterile branchlets and the long-petiolate leaves. The corolla-tube is shorter and the lobes longer accordingly than those of *H. phyllophora.* The calyx lobes are lanceolate as opposed to the oblanceolate lobes of the latter species. The capsule of *H. García-Barrigae* is erect and lanceolate, whereas that of *H. phyllophora* is subfalcate and subellipsoid.

The species is named for the junior collector of the type.

Halenia insignis, sp. nov.

Herba perennis caule simplice robusto erecto ad 25 cm. alto; internodiis ± equidistantibus ad 3.5 cm. longis; foliis basalibus longe petiolatis, petiolis ad 3 cm. longis, lanceolatis ad 5.5 cm. longis ± 6 mm. latis acutis trinerviis, caulinibus 3-7 paribus inferioribus basalibus similibus, petiolatis demum ad caulem summum sessilibus; inflorescentia terminali et axillari subumbellata densiflora 2-3 cm. longa, pedicellis strictis brevibus rare ad 1.5 cm. longis; calyce folioso ad 1 cm. longo 2/3 totae corollae longitudinem adaequante, segmentibus oblanceolatis abrupte subacuminatis 5-nerviis; corolla ad 1.5 cm. longa (calcaribus inclusis) ad 7 mm. lata, tubo minusquam 1/3 totae coro-

liae longitudinem adaequante; corollae lobis oblongo-ellipticis; calcaribus 1/3 corollae longitudinem adaequantibus pendulis incurvatis paullo incrassatis; capsula late lanceolata ad 13 mm. longa; seminibus ellipsoideis.

Colombia: Dept. Boyacá: Nevado del Cocuy; alto valle de Las Lagunillas, 4000-4300 m., Sept. 12, 1938, *J. Cuatrecasas 1455* (USNH, type); *1441* (Herb. Nac. Col.); Las Lagunillas, Tabloncito, fields and woods, 3930 m., Sept. 13, 1938, *J. Cuatrecasas 1584* (USNH).

This perennial with a single robust densely foliose stem arising from a thick rosette of leaves is striking also because of the thickly clustered, strict, though umbellate, inflorescence. The flowers are borne on erect stiff very short pedicels and are adorned with large foliose calyx-lobes and slightly thickened spurs which are pendulous and incurved. *Cuatrecasas 1441,* although caespitose, matches in floral structure and leaves the type of the species. The nearest relative of *H. insignis* appears to be *H. Killippi* from Peru, but it is separated at once by its linear-lanceolate leaves.

Halenia nivalis, sp. nov.

Herba perennis, caule simplice erecto ad 25 cm. lato; internodiis ad 9 cm. longis; foliis basalibus petiolis ad 1.5 cm. longis lanceolatis ad 3.5 cm. longis 6 cm. latis acutis trinerviis; caulibus ± 3-paribus sessilibus; inflorescentia terminali et paullo axillari subumbellata ad 3.5 cm. longa, pedicellis curvatis ad 2.5 cm. longis; calyce aliquid folioso 1/3 totae corollae longitudinem adaequante; segmentibus paullo oblanceolatis acutis 3-nerviis; corolla ad 15 mm. longa (calcaribus inclusis) ad 6 mm. lata, tubo ± 1/3 corollae longitudinem adaequante; corollae lobis ovatis undulatis; calcaribus ca. ± 1/3 corollae longitudinem adaequantibus pendulis incurvatis; capsula (*Cuatrecasas 1343*) late lanceolata subfalcata ad 18 mm. longa; seminibus ellipsoideo-globosis.

Colombia: Dept. Boyacá: Nevado del Cocuy; Valle del Cocuy, 3400-3500 m., Sept. 13, 1938, *J. Cuatrecasas 1685* (USNH, type); Chorreón de San Paulino 3750 m., Sept. 10, 1938, *J. Cuatrecasas 1343* (USNH, fruit); Quebrada de San Paulino, El Morrón, 3800 m., Sept. 11, 1938, *J. Cuatrecasas 1408* (USNH).

The above species also is similar to *H. Killippii* but again may be readily distinguished by the lanceolate leaves. The flowers resemble these of *H. insignis,* but are borne in less strict inflorescences and on more or less recurved pedicels. The internodes are more remote and

the habit as a whole is less robust. There is a close affinity between the two species in habitat as well as general characteristics. Future ecological study may link them together as extreme variations of the same species.

Halenia venezuelensis, sp. nov.

Herba perennis caule simplice gracile erecto ad 25 cm. alto; internodiis ad 5.5 cm. longis, foliis basalibus latum petiolum attenuatis lineari-lanceolatis ad 2 cm. longis 2 mm. latis acutis costa conspicua; caulinibus anguste lanceolatis ad 1.5 cm. longis sessilibus; inflorescentia terminali et axillari pauciflora (minusquam 5) ad 2 cm. longa, pedicellis brevibus ad 1 cm. longis recurvatis; calyce ad 5 mm. longo 2/3 totae corollae longitudinem adaequante; segmentibus lanceolatis attenuate acutis 1-nerviis, corollae ad 8 mm. longa (calcaribus inclusis) ad 5 mm. lata, tubo minusquam 1/3 totae corollae longitudinem adaequante; corollae lobis ovatis margine undulatis; calcaribus ± 1.5 mm. longis ± 1/5 corollae longitudinem adaequantibus pendulis divaricatis; capsula lanceolata ad 11 mm. longa; seminibus ellipsoideis.

Venezuela: Táchira: Páramo de Tamá, 3100-3300 m., July 1939, *F. Cardona 309* (USNH, type), 4000 m., in 1937, *F. Cardona 147* (USNH).

The species is one of three known from Venezuela. The other two Venezuelan entities, *H. subinvolucrata* Gilg and *H. parallela* Allen, are typical members of the section *Swertiella.* There is a question whether or not *H. venezuelensis* should be included in this because of the presence of minute spurs. The species *H. adpressa* Allen, to which *H. venezuelensis* is most closely related, was originally placed, together with *H. brevicornis* (H.B.K.) G. Don in section *Swertiella,* because of the presence of small protuberances instead of well-defined spurs. Subsequently collections have come to hand showing great variability in this floral structure. This circumstance has raised an inquiry as to the advisability of maintaining so variable a character as spur-length as one of the features designating the section. Eventually both *H. brevicornis* and *H. adpressa* will probably be transferred tho the section *Haleniastrum.* For this reason, *H. venezuelensis* is placed temporarily in the section *Swertiella* with the two latter species. Further collections may show that *H. venezuelensis* is but still another manifestation of variation in *H. adpressa.* The former differs from the latter in having spurs that are intermediate in length between the spurless and spurred forms of *H. adpressa,* flowers that are borne on shorter pedicels, a smaller corolla and shorter tube.